

phane)(trifluoroacetate)₂, i.e., Co^{II}(HAPP)(TFA)₂, reveals that the complex contains two labile axial TFA ligands, and two linked 1,10-phenanthroline moieties where all four pyridyl nitrogen atoms are located on the same coordination plane. The average Co-N distance is approximately 1.86 Å. EPR spectrum of the Co^{II} complex gave a g_{av} value at 2.005-2.331 in methanol, indicating the presence of an octahedral Co^{II} complex. When one equivalent of pyridine was added, it rapidly displaced one of the axial TFA ligands under ambient conditions, as monitored by EPR spectroscopy, suggesting that the TFA ligands are labile. The TFA ligands can also be readily substituted by water upon dissolution of the complex in aqueous buffer. --

Replace the paragraph beginning at page 13, line 2 with the following rewritten paragraph:

-- A 26-mer 5'-GCAGACTGAGCCTGGGAGCTCTGC-3' (SEQ ID No. 4) (D, Figure 1) was used as the DNA substrate. It was prepared according to the same procedures as described in Example 1. Note that substrate D only differs from substrate A in that its bulge contains one less base. --

Replace the paragraph beginning at page 13, line 13 with the following rewritten paragraph:

-- Co^{II}(HAPP)(TFA)₂ (0.6 μM) was allowed to react under identical conditions as described above with a single-stranded 16-mer of the sequence 5'-GCCAGATCTGAGCCTG-3' (SEQ ID No. 2) (B, Figure 1) in the presence of H₂O₂. No specific cleavage was observed at the 5'-TCT-3' site, even when the concentration of the cobalt complex was increased by 20-fold. The single-stranded substrate was then allowed to anneal with a complementary DNA strand 5'-CAGGGCTCTGCC-3' (SEQ ID No. 3) to form a double-stranded DNA with a three-base bulge (C, Figure 1). When the Co^{II} complex was added to the double-stranded substrate, enhanced DNA cleavage was observed at the 5'-TCT-3' bulge. These results indicate that the Co^{II} complex serves as a DNA bulge-specific cleavage reagent without significant specificity towards the corresponding sequence in the single-stranded DNA. --